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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,106	02/12/2002	Tsuyoshi Yamamoto	020154	3709

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EXAMINER	
KIM, PAUL D	

ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,106	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Paul D. Kim	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *5-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/12/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is a response to the restriction requirement filed on 5/19/2005.

Response to the Election of Species

1. Applicant's election of Species A, drawn to Figs. 4-6, claims 1-4, in the reply filed on 5/19/2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. The non-elected claims 14-19 have been cancelled.

3. Claims 5-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/19/2005.

Claim Rejections - 35 USC § 103

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikita et al. (US PAT. 6,113,637) in view of Kobayashi et al. (JP 57188833 A).

Hikita et al. teach a process of mounting electronic component comprising steps of: placing an electronic component (16) on a substrate (14) with a solid support (24, anisotropic conductive film) interposed between the electronic component and the substrate so as to space a terminal conductor (16b) of the electronic component from a corresponding terminal pad (14c) on the substrate; and melting the solid support so as to move down the electronic component toward the substrate, thereby contacting the

terminal conductor with the conductive bonding material melting on the corresponding terminal pad as shown in Figs. 7 and 8 (see also col. 5, line 61 to col. 6, line 19).

However, Hikita et al. do not teach melting the conductive bonding material on the terminal pad prior to contact the terminal conductor with the conductive bonding material. Kobayashi et al. teach a connecting method such that a conductive bonding material (2) is heated to be the melted conductive bonding material (5) before the material to be connected as shown if Figs. 1-2 in order to improve the strength of bonding between the electronic component and the substrate (see also abstract). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a mounting process of Hikita et al. by melting the conductive bonding material on the terminal pad before the material to be connected as taught by Kobayashi et al. in order to improve the strength of bonding between the electronic component and the substrate.

As per claim 2 the anisotropic conductive film used as the solid support of Hikita et al. is made of epoxy resin containing metal particles such as resin ball plated with nickel or gold and the conductive bonding material is made of solder. In the manufacturing of the electronic component, the anisotropic conductive film containing metal particles such as resin ball plated with nickel or gold height has a higher melting point than the solder material, which is well known in the art. At the time the invention was made, it would be also an obvious matter of design choice to a person of ordinary skill in the art to use the material such as thermoplastic resin having a high melting point as recited in the claimed invention because Applicant has not disclosed that the material

as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Hikita et al. because the material as recited in the claimed invention would perform equally well such as conductive film containing metal particles, which has a relative high melting point of Hikita et al than solder material in Kobayashi et al. Therefore, it would have been an obvious matter of design choice to modify the conductive film containing metal particles of Hikita et al. to obtain the invention as specified in claim 2.

As per claim 3 the conductive bonding material comprises solder bump.

As per claim 4 the anisotropic conductive film used as the solid support is made of epoxy resin, which has an adherent property (col. 8, lines 54-56).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D. Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul D Kim
Examiner
Art Unit 3729